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EXAMINER

KENDALL, CHUCK O

ART UNIT	PAPER NUMBER
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2192

DATE MAILED: 06/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/783,250

Applicant(s)

PAL ET AL.

Examiner

Chuck Kendall

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 April 2005.
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3, 5 - 17, 20, 22 - 30, 33, & 35 - 45 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 3, 5 - 17, 20, 22 - 30, 33, & 35 - 45 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date 04/20/2005.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

RD

DETAILED ACTION

1. This action is in response to amendment filed 03/28/05.
2. Claims 3, 5 – 17, 20, 22 – 30, 33, & 35 – 45 are pending.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3,5,6, 9,13,15, 16,20,22,23, 25, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darty USPN 6,173,440 (hereinafter Darty, [art of record]) in view of ATAC: Overview published 7/15/1998 (art of record).

Regarding claims 13, for testing a program having statements, said method comprising the steps of:

- a) dividing said program into a plurality of groups such that every statement in the program belongs to at least one of the groups, (Figure 3a, Darty, S102) and
- b) determining the one of the groups that are executed when said program is executed while testing said program (Figure 3c, S137);
- c) indicating unexecuted ones of the groups based on the ones of the groups that were determined in step b) to have been executed (14:36 – 40, see runtime (i.e. execution time) pass/fail matrix);
- d) enabling a tester to executed said unexecuted groups such that said tester can ensure that all statements in said program are executed at least once (Figure 3d, S150, S153, S155, S 160 and C which flows back to B, on Figure 3c, Examiner interprets the unexecuted groups to be S148 in Figure 3d).

e) including an extra statement in each of said groups, wherein execution of such an extra enables said determining in step b) to identify an executed one of the groups corresponding to said extra statement, wherein said program is contained in a plurality of programs which in turn are contained in a class of an object oriented environment (Darty, see Figure 3c, S135 for Run TimePass/Fail, Examiner interprets identifying an executed ones to be blocks that passed);

f) enabling said tester to define a macro containing a plurality of programs lines; storing said macro in a database(5: 57- 65, see test points for macros); and

g) enabling said tester to execute said macro in the middle of testing said plurality of programs (5: 57- 65, see test points written during code execution).

Although, Darty, doesn't explicitly disclose wherein each of said groups contains a respective sequence of ones of the statements such that all the statements of such a group are executed if at least one statement of said group is executed, wherein such a group is deemed to be executed if at least one of the statements of the group is executed when the program is executed.

Darty does show the blocks of code being tested for passing and failing and upon the determination, if failed making the necessary corrections and re-executing see Figure 3d and 3c. However, the ATAC: Overview discloses on page 2, in section 3.3.1 that, " Block coverage ensures that all the basic blocks are executed at least once". Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Darty and The ATAC: Overview because, " a test case that executes all program statements tends to test a program more thoroughly than a test set that invokes all functions", ATAC: Overview section 3.2, 3rd paragraph.

Regarding claim 29, which is the computer program product version of claim 13, see rationale as discussed above.

Regarding claim 3, the method of claim 13, wherein said extra statements contains respective group identifiers, wherein said determining in step b) further comprises examining such a group identifier to determine a specific one of the groups

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which has been executed (Darty, see Figure 3b, S122 shows each test point being associated to blocks, Examiner interprets this as a means of identifying and correlating blocks).

Regarding claim 5, the method of claim 13, further comprising the steps of:
grouping a sequence of the groups into a block; and

determining that said block has been executed only if all of the groups of the block are executed (The ATAC: Overview discloses on page 2, in section 3.3.1 that, "Block coverage ensures that all the basic blocks are executed at least once).

Regarding claim 6, the method of claim 5, Darty discloses all the claimed limitations as applied in claim 5. Although, Darty doesn't explicitly disclose wherein said grouping comprises: determining a language structure present in said plurality of programs as well as grouping a subset of groups present in said language structure into a block such that the statements in said language structure are presented as a block to said tester.

Darty does disclose grouping lines of code into functional blocks S102. However, the ATAC: Overview discloses language structures within several programs, see Block 1, Block 2, and Block 3, on page 3. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Darty and ATAC because, "...achieving completely adequate block coverage ensures that the entire program is at least executed " ATAC: overview section 3.3.1, 3rd paragraph.

Regarding claim 9, the method of claim 13, wherein said enabling comprises:
enabling said tester to examine the statements associated with said unexecuted blocks such that said tester can determine arguments which would cause an unexecuted block to be executed; enabling said tester to enter said determined arguments to cause said unexecuted block to be executed (Darty, Figure 10, see process failure data and determine corrective action).

Regarding claim 15, the method of claim 13, wherein said dividing, determining, indicating and enabling are performed in a single computer system (Darty, Figure 3a, S102).

Regarding claim 16, the method of claim 13, wherein said object is generated in Java programming language (Darty, 21: 25 – 27, see Java).

Regarding claim 20, (computer program product) see claim 3 for reasoning.

Regarding claim 22, (computer program product) see claim 5 for reasoning.

Regarding claim 23, (computer program product) see claim 6 for reasoning.

Regarding claim 25, computer program product of claim 21, wherein said enabling means comprises:

second enabling means for enabling said tester to examine the statements associated with said unexecuted blocks such that said tester can determine arguments which would cause an unexecuted block to be executed (Darty, Figure 10, see diagnostics).

third enabling means for enabling said tester to enter said determined arguments to cause said unexecuted block to be executed (Darty, see Figure 3c, S135 for Run TimePass / Fail, Examiner interprets identifying an executed ones to be blocks that passed).

5. Claims 10 – 12, 14, 17, 26 – 28, 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darty USPN 6,173,440 (hereinafter Darty,[art of record]) in view of ATAC: Overview published 7/15/1998, and further in view of Rodrigues USPN 6067639 A (art of record).

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Regarding claim 10, Darty as modified by ATAC: Overview discloses all the claimed limitations as applied in claim 9 above. The combination of Darty and ATAC does not disclose wherein said argument comprises an instance of another object. Darty does disclose implementing using the Java language which does inherently have object instantiation Darty, 21: 25 – 27, see Java. However, Rodrigues in an analogous art discloses comprising instance of other objects see (Rodrigues FIG. 5, 502). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Darty and ATAC with Rodrigues because, object instantiation is a general practice in Object oriented languages such as C++ and Java, which enable functions and other class members to implement class objects.

Regarding claim 11, the method of claim 10, further comprises: enabling said tester to instantiate said instance of said another object (Rodrigues, FIG.5, 502); enabling said tester to assign a name to said instance, wherein said tester can enter said name to provide said instance as an argument value (Rodrigues, 13:13 – 15).

Regarding claim 12, the method of claim 11, further comprising:
receiving a string as an argument (Rodrigues, 13:13 – 15, see name); and
determining that said string indicates that said instance is said argument value if said name matches said string (Rodrigues, 13:13 – 35).

Regarding claim 14, the method of claim 13, wherein said macro is designed to examine the data structures within an instance of an object or to set the values for the variables in the object (Rodrigues, FIG., 502).

Regarding claim 17, the method of claim 13, further comprising: enabling said tester to load said class; enabling said tester to instantiate an instance of said class (Rodrigues, FIG., 502); and enabling said tester to execute said program on said instance (Rodrigues, FIG., 504).

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Regarding claim 26, (computer program product) see claim 11 for reasoning.

Regarding claim 27, (computer program product) see claim 12 for reasoning.

Regarding claim 28, (computer program product) see claim 14 for reasoning.

Regarding claim 30, (computer program product) see claim 17 for reasoning.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 7, 8, 24, are rejected under 35 U.S.C. 103(a) as being unpatentable over Darty USPN 6,173,440 (hereinafter Darty) in view of ATAC: Overview published 7/15/1998 (hereinafter "ATAC "), as applied in claim 6, and further in view of Uchihira et al. USPN 5,860,009 (hereinafter Uchihira, [art of record]).

Regarding claim 7, Darty as modified by ATAC discloses all claimed limitations as applied in claim 6 above. The combination of Darty and ATAC doesn't explicitly disclose wherein said blocks are defined hierarchically according to the inclusive relationship of language structures in said plurality of programs. However, Uchihira does disclose this feature in a similar configuration (25:55 – 60). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made

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to combine Darty and ATAC with Uchihira because, defining instructions hierarchically by different levels enables more efficient prioritization.

Regarding claim 8, Darty as modified by ATAC discloses all the claimed limitations as applied in claim 7. Although, the combination of Darty and ATAC doesn't explicitly disclose wherein said language structure comprises one of program delimiters, control structure and loop structure. Darty does disclose grouping lines of code into functional blocks S102. However, ATAC: Overview discloses language structures within several programs, see Block 1, Block 2, and Block 3, Block 1 of which includes conditional expressions on page 3. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Darty and ATAC because, "...achieving completely adequate block coverage ensures that the entire program is at least executed " (ATAC: overview section 3.3.1, 3rd paragraph).

Regarding claim 24, (computer program product) see claim 7 for reasoning.

8. Claim, 33, 35 – 43, 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darty USPN 6,173,440 (hereinafter Darty) in view of ATAC: Overview published 7/15/1998, and further in view of Grey et al. USPN 6,507,842 B1n (art being made of record).

Regarding claim 42, Darty discloses a system enabling a tester to test a program having statements, said computer system comprising;

- a random access memory (Figure 1, 24 see RAM);

- a display unit containing a display system screen (Figure 1, 33);

- an input interface (Figure 1, 28);

- a processor (Figure 1, 22) dividing said program into a plurality of groups such that every statement in the program belongs to at least one of the groups, (dividing said program into a plurality of groups such that every statement in the program belongs to at least one of the groups, (Figure 3a, Darty, S102 associated text);

said processor executing said program in response to instructions received from said input interface (Figure 3c, S137, and associated text);

said processor determining the ones of the groups that are executed when said program is executed (Figure 3c, S137 – S139 associated text);

said processor causing a display to be generated on said display unit said display indicating unexecuted one of the groups based on the ones of the groups that are determined to have been executed (Figure 3c, see Fail test and associated text, for displaying also see, (19:65 – 20: 10, see CAD which inherently uses a display, also see Figure 1, 33 for display);

wherein said computer system further comprises a secondary storage (Figure 1, 26), wherein said processor stores said program including said extra statement on said secondary storage , wherein said program is contained in a plurality of programs which in turn are contained in a class of an object oriented environment (19:47 – 55, see class and software design tool), wherein said processor receives a plurality of program lines representing a macro.

Although, Darty, doesn't explicitly disclose wherein each of said groups contains a respective sequence of ones of the statements such that all the statements of such a group are executed if at least one statement of said group is executed, wherein such a group is deemed to be executed if at least one of the statements of the group is executed when the program is executed.

Darty does show the blocks of code being tested for passing and failing and upon the determination, if failed making the necessary corrections and re-executing see Figure 3d and 3c. However, the ATAC: Overview discloses on page 2, in section 3.3.1 that, " Block coverage ensures that all the basic blocks are executed at least once". Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Darty and The ATAC: Overview because, " a test case that executes all program statements tends to test a program more thoroughly than a test set that invokes all functions", ATAC: Overview section 3.2, 3rd paragraph.

The combination of darty and ATAC doesn't explicitly disclose said program storing said macro in a database and said processor executing said macro in response

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to receiving an instruction to execute said macro. However, Grey in an analogous art and similar configuration discloses in a testing environment storing in a database associated test steps and sequences (3:35 – 50). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Darty, ATAC and Grey because, storing the test in the database would improve reusability of the tests (see, Grey 1: 15 –18) and also make it more dynamic see (3:35 – 50).

Regarding claim 33, (a system) see claim 3 for reasoning.

Regarding claim 35, (a system) see claim 5 for reasoning.

Regarding claim 36, (a system) see claim 5 for reasoning.

Regarding claim 37, (system) see claim 7 for reasoning.

Regarding claim 38, the system of claim 34, wherein said processor receives instructions from said input interface to display the statements associated with said unexecuted blocks, said processor causing the statements to be displayed on said display unit such that said tester can determine arguments which would cause an unexecuted block to be executed (Darty, see Figure 3c, S135 for Run TimePass/Fail, Examiner interprets identifying an executed ones to be blocks that passed).

Regarding claim 39, the system of claim 38, wherein said argument comprises an instance of another object (Rodrigues, FIG.5, 502).

Regarding claim 40, (system) see reasoning in claim 11.

Regarding claim 41, (system) see reasoning in claim 12.

Regarding claim 43, (system) see reasoning in claim 14.

Regarding claim 45, the system of claim 42, wherein said input interface is connected to at least one of a mouse and a key-board (Darty, 4: 10 – 15, also see Uchihira, 12:11, note key-board and mouse devices are well known devices for use on computer system).

9. Claim, 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darty USPN 6,173,440 (hereinafter Darty) in view of ATAC: Overview published 7/15/1998 and further in view of Grey et al. USPN 6,507,842 B1, as applied in claim 42, and further in view of Rodrigues USPN 6,067,639 A.

Regarding claim 44, Darty as modified discloses all the claimed limitations as claimed in claim 42 above. The combination of Darty, ATAC and Grey doesn't explicitly disclose said processor loads said class into said RAM in response to receiving an instruction to load said class, said processor further instantiating an instance of said class in response to receiving another instruction, said processor executing said program on said instance in response to receiving one more instruction. However Rodrigues does disclose this in an analogous art (Rodrigues, 15: 37 – 40).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Darty, ATAC, Grey and Rodrigues because, it would enable it to be performed more efficiently in an object oriented environment.

Response to Arguments

10. Applicant's arguments, see amendment, filed 03/28/2005, with respect to claims 3, 5 – 17, 20, 22 – 30, 33, & 35 – 45 have been fully considered and are persuasive.

The Advisory action of 04/06/2005 has been withdrawn.

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Conclusion

11.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Dam can be reached on 571-2723695. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CK.



**TUAN DAM
SUPERVISORY PATENT EXAMINER**